

The Claims

1. A computer network agent system for providing communication between an anonymous potential consumer of products which can be goods or services and a provider of such products, comprising in combination:
- 5 a consumer personal agent for receiving product queries from the potential consumer and transmitting product recommendations to the potential consumer;
- 10 a decision agent for receiving anonymous product queries from the consumer personal agent and transmitting product recommendations to the consumer personal agent;
- a provider personal agent for receiving demand queries from the provider and transmitting quantified demand information to the provider;
- 15 a demand agent for receiving demand queries from the provider personal agent and transmitting quantified demand information to the provider personal agent; and
- a market for gathering information from the agents, organizing the information and distributing organized information to the agents.
- 20 2. A computer network agent system according to Claim 1 wherein the consumer personal agent comprises, in combination:
- a unique identifier function for maintaining an identifier that uniquely identifies the consumer personal agent within the agent system;
- 25 an owner manager function for maintaining data about the consumer;
- an individual firewall for protecting the data about the consumer from other agents, controlling all access to data that is maintained by the

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- a decision composer for assisting the consumer in composing queries to be executed by decision agents;
- a decision agent factory for creating a new decision agent to carry out a query; and
- a decision agent tracker for enabling the consumer to monitor the activities of decision agents that have not completed their tasks.

5. A computer network agent system according to Claim 4 wherein the decision agent manager further comprises a decision agent archive for storing and accessing decision agents that have completed their tasks.

5 6. A computer network agent system according to Claim 1 wherein the provider personal agent comprises, in combination:
a unique identifier function for maintaining an identifier that uniquely
identifies the provider personal agent within the agent system;
an owner manager function for maintaining data about the provider;
10 an individual firewall for protecting the data about the provider from other agents, controlling all access to data that is maintained by the various internal functions, ensuring that only authenticated and authorized agents and users can access private data;
a preference manager for maintaining data about the preferences of the
15 provider;
a delivery manager for accepting messages generated by other agents or other components of the system, that are directed to the provider and delivers those messages according to the provider's desired delivery time and delivery media and rejecting unsolicited
20 messages, unless an unsolicited message meets the provider's preferred criteria as maintained by the preference manager; and
a demand agent manager for assisting the provider with the creation and management of demand agents.

25 7. A computer network agent system according to Claim 6 wherein the demand agent manager comprises, in combination:

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11. A computer network agent system according to Claim 10 wherein the advertisement manager further comprises an advertisement archive for storing and accessing advertisements that are expired.

12. A computer network agent system according to Claim 6 wherein the provider personal agent further comprises a target manager for assisting the provider in identifying consumer personal agents to which targeted messages may be delivered.
13. A computer network agent system according to Claim 1 wherein the decision agent comprises, in combination:
- a unique identifier function for maintaining an identifier that uniquely identifies this decision agent within the agent system;
 - a personal agent reference for holding a copy of the unique identifier of the consumer personal agent that controls this decision agent;
 - a market reference for indicating in which market the decision agent should search;
 - an expiry function for indicating how long the decision agent should continue searching;
 - a query for describing the product or product category for which to search;
 - a response manager for receiving search results and returning the search results to the consumer personal agent; and
 - a log function for storing records of the activities of the decision agent.
14. A computer network agent system according to Claim 1 wherein the demand agent comprises, in combination:
- a unique identifier function for maintaining an identifier that uniquely identifies this demand agent within the agent system;
 - a personal agent reference for holding a copy of the unique identifier of the provider personal agent that controls this demand agent;

a market reference for indicating in which market or markets the demand agent should search;

a datetime range function for indicating that demand should be quantified over the date/time range specified;

5 a demand query for describing a product or product category query that can be matched against the queries of decision agents; and

a log function for storing records of the activities of the demand agent for later consultation by other components of the agent system.

10 15. A computer network agent system according to Claim 1 wherein the market comprises, in combination:

a product listing function for maintaining a list of the products that can be advertised in this market;

15 a cross reference manager for maintaining cross references to other markets that carry similar products;

a sell advertisement manager for accepting advertisements of offers to sell that are submitted by consumer personal agents;

a buy advertisement manager for accepting advertisements of offers to buy that are submitted by consumer personal agents;

20 an active demand agent manager for maintaining a list of all demand agents that are currently calculating demand in this market;

a template dispenser for retrieving data that is available within the agent system about a particular product;

25 a query logger for archiving summary information about queries so that historical data about queries may be quickly accessed without having to access the detailed data which has been archived; and

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an historical demand search engine for matching demand queries of demand agents against the queries that have been previously logged by the query logger to identify decision agents that previously, during a specified datetime range, had searched for a certain product or product category.

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16. A computer network agent system according to Claim 15 wherein the market further comprises a remote database adaptor for providing communication and session management services to connect to a remote database belonging to a manufacturer or a provider and translating between the data formats used by the remote database and the data formats used by the market.

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17. A computer network agent system according to Claim 15 wherein the market further comprises an authorization function for restricting the placement and searching of advertisements in the market to authorized consumers and providers only.

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18. A computer network agent system according to Claim 15 wherein the buy advertisement manager further comprises, in combination:
an advertisement indexer for maintaining indexes for quick searching of the advertisements by product and vendor characteristics;
an active advertisements function for maintaining information about advertisements that are currently active, wherein an active decision agent manager is notified as each new advertisement is accepted by the active advertisements function so that pending searches can be matched against the new advertisement;

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a future advertisements function for maintaining advertisements that have been submitted to the market, but are not yet active because their effective datetime has not yet been reached;

an expired advertisements function for maintaining an archive of advertisements that have expired, for later analysis;

an active decision agent manager for maintaining a list of all decision agents that are currently searching this market for products; and

an expired decision agent manager for maintaining a list of decision agents that have completed their searches, whether successfully or not.

19. A computer network agent system according to Claim 18 wherein the active decision agent manager comprises, in combination:
- an immediate agents function for keeping track of decision agents that are performing searches that are to be performed and results returned as soon as practical;
 - a basic search engine for executing queries associated with each incoming decision agent by consulting active advertisements to match the query against all active advertisements;
 - a pending agents function for keeping track of decision agents that are performing extended searches;
 - an incremental search engine for matching each new advertisement against the queries of the pending decision agents; and
 - a current demand search engine for matching demand queries of demand agents against the queries of decision agents that are residing in immediate agents or pending agents, to identify active decision agents that are searching for a certain product or product category.

20. A computer network agent system according to Claim 15 wherein the sell advertisement manager further comprises, in combination:
an advertisement indexer for maintaining indexes for quick searching of the advertisements by product and vendor characteristics;
5 an active advertisements function for maintaining information about advertisements that are currently active, wherein an active decision agent manager is notified as each new advertisement is accepted by the active advertisements function so that pending searches can be matched against the new advertisement;
10 a future advertisements function for maintaining advertisements that have been submitted to the market, but are not yet active because their effective datetime has not yet been reached;
an expired advertisements function for maintaining an archive of advertisements that have expired, for later analysis;
15 an active decision agent manager for maintaining a list of all decision agents that are currently searching this market for products; and
an expired decision agent manager for maintaining a list of decision agents that have completed their searches, whether successfully or not.
- 20 21. A computer network agent system according to Claim 20 wherein the active decision agent manager comprises, in combination:
an immediate agents function for keeping track of decision agents that are performing searches that are to be performed and results returned as soon as practical;
25 a basic search engine for executing queries associated with each incoming decision agent by consulting active advertisements to match the query against all active advertisements;

a pending agents function for keeping track of decision agents that are performing extended searches;
an incremental search engine for matching each new advertisement against the queries of the pending decision agents; and
5 a current demand search engine for matching demand queries of demand agents against the queries of decision agents that are residing in immediate agents or pending agents, to identify active decision agents that are searching for a certain product or product category.

- 10 22. A method for searching for a product by a consumer, comprising in combination the steps of:
selecting a decision agent manager to supervise the subsequent steps;
composing a decision query;
creating a decision agent;
15 delivering the decision agent to a specified market;
accepting the decision agent by the market; and
searching for the product.
- 20 23. A method for searching for a product according to Claim 22 wherein the step of composing a decision query comprises, in combination, the steps of:
if specifying an entirely new search, selecting a market in which to search;
if the selected market is a restricted market for which the consumer is not authorized, displaying an error message to the consumer, and
25 returning to the initial menu where another action may be selected;
if the consumer is authorized for the restricted market, or if the market is not restricted, selecting the product for which to search;

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retrieving a product template and instructions from a market template
dispenser;

formatting and displaying the product template and the instructions;
completing the search criteria in the product template;

5 if performing a search that will continue for a period of time, entering a
period of time for the search to continue;

if performing a search that will return results as soon as possible, indicating
such; and

selecting a delivery media and a delivery time and period.

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24. A method for searching for a product according to Claim 22 wherein the
step of creating a decision agent comprises, in combination, the steps of:
creating a decision agent with a unique identifier;
storing a reference to ^a the personal agent of the consumer, a reference to the
15 market that is to be searched, the search expiry time, the delivery
media, time, and period, and the query; and
logging the creation of the decision agent with the ^{decision} new agent's log
function.

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20 25. A method for searching for a product according to Claim 22 wherein the
step of accepting the decision agent comprises, in combination, the steps
of:
accepting the new ^{decision} agent by an active decision agent manager;
logging the query from the agent to the market's query logger function;
25 and
adding the agent to a queue of immediate agents.

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26. A method for searching for a product according to Claim 22 wherein the step of searching for the product comprises, in combination, the steps of: searching for the product as soon as possible; if performing a search that will continue for a period of time, delivering the decision agent to queue of pending agents; and if performing a search that will return results as soon as possible, ending the decision search.

27. A method for searching for a product according to Claim 26 wherein the step of searching for the product as soon as possible comprises, in combination, the steps of: selecting the next decision agent from the queue; delivering the query from the decision agent to a search engine; matching the query against active advertisements; collecting matching advertisements; responding to each placer of an advertisement to indicate that the advertisement was collected; and giving the decision agent back to the active decision agent manager.

28. A method for quantifying demand by a provider for a product, comprising in combination the steps of: selecting a demand agent manager to supervise the subsequent steps; composing a demand query; creating a demand agent; delivering the demand agent to a market; accepting the demand agent by the market; and searching demand.

29. A method for quantifying demand according to Claim 28, wherein the step of composing a demand query comprises, in combination, the steps of:
if specifying an entirely new search, selecting a market in which to search;
if the selected market is a restricted market for which the provider is not
5 authorized, displaying an error message to the provider, and
returning to the initial menu where another action may be selected;
if the provider is authorized for the restricted market, or if the market is
not restricted, selecting the product for which to search;
retrieving a product template and instructions from a market template
10 dispenser;
formatting and displaying the product template and the instructions;
completing the search criteria in the product template;
if performing a search for historical demand, entering a date and time
range;
15 if performing a search for current demand, indicating such; and
selecting a delivery media and a delivery time.
30. A method for quantifying demand according to Claim 28, wherein the step
of creating a demand agent comprises, in combination, the steps of:
20 creating a decision agent with a unique identifier;
storing a reference to the personal agent of the provider, a reference to the
market that is to be searched, the search expiry time, the delivery
media, time, and period, and the query; and
logging the creation of the new agent with the new agent's log function.
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31. A method for quantifying demand according to Claim 28, wherein the step
of accepting the demand agent comprises, in combination, the steps of:

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accepting the agent by an active demand agent manager; and
logging the query from the demand agent to the market's query logger
function.

- 5 32. A system for electronic commerce wherein market data can be collected
and analyzed comprising:
a plurality of consumer agents, each associated with and capable of
communicating with a consumer;
a consumer data base comprising consumer preference data associated with
10 each said consumer;
a plurality of provider agents, each associated with and capable of
communicating with a provider; and
a data base of offers to sell and offers to buy;
wherein said consumer agents conceal the identity of the associated
15 consumer from agents not associated with said consumer in said
system;
wherein said consumer agents are capable of searching said data base of
offers to sell and offers to buy;
wherein said consumer agent searching generates persistent market data;
20 wherein said provider agents are capable of searching said consumer
database and said persistent market data; and
wherein said provider agents analyze said consumer database and said
persistent market data to quantify consumer demand.
- 25 33. The system of claim 32 wherein said consumer data base furthers
comprises non-identifying demographic data.

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various internal functions, ensuring that only authenticated and authorized agents and users can access private data;
a preference manager for maintaining data about the preferences of the provider;

5 a delivery manager for accepting messages generated by other agents or other components of the system, that are directed to the provider and delivers those messages according to the provider's desired delivery time and delivery media and rejecting unsolicited messages, unless an unsolicited message meets the provider's
10 preferred criteria as maintained by the preference manager; and
a demand agent manager for assisting the provider with the creation and management of demand agents.

36. A method for searching for product offers, comprising:
15 providing a computer system adapted to operation of agents;
providing a consumer agent, each associated with and capable of communicating with a consumer;
providing a consumer data base of consumer preference data associated with each said consumer;
20 providing a data base of offers to sell and offers to buy;
concealing the identity of said consumer from agents not associated with said consumer;
said consumer agent assisting said consumer in composing a query for a product or product category;
25 said consumer agent searching said data base of offers to sell and offers to buy, wherein said searching generates persistent market data;

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said consumer agent retaining search results of said searching until the
associated consumer's preferred delivery time;
said consumer agent automatically filtering out any of said search results
that violate any of said consumer preference data;
5 said consumer agent ordering or ranking said search results according to
said consumer preference data;
said consumer agent formatting said search results for delivery to said
associated consumer's preferred communication device; and
said consumer agent delivering said search results to said communication
10 device;
whereby said consumer can gather product data that is automatically
filtered and ranked according to said consumer preferences.

37. The method of claim 36 further comprising:

15 providing a data base of advocate evaluation and recommendation data;
said consumer selecting data from said data base of advocate evaluation and
recommendation data to include in said consumer's said consumer
data base of consumer preference data;
said consumer agent thereby further automatically filtering out any of said
20 results that violate consumer's selected advocate evaluation and
recommendation data;
whereby said consumer has a convenient way to use advocate evaluation
and recommendation data to automatically filter and rank said
search results.

25 38. A method for collecting and analyzing market data, comprising:
providing a computer system adapted to operation of agents;

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39. The method of claim 38 wherein said searching by said provider agents is restricted to current data within said persistent market data, and said analyzing quantifies current consumer demand.

40. The method of claim 38 wherein said searching by said provider agents is restricted to historical data within said persistent market data, and said analyzing quantifies historical consumer demand.

5 41. A method for quantifying future demand for a certain product or a certain product category, utilizing persistent market data generated by consumer agents that conceal the identity of said consumer agent's associated consumer, while searching a data base of offers to sell and offers to buy, and utilizing a consumer data base of consumer preference data,
10 comprising:
searching said consumer data base to discover which of said consumer agents possess certain preferences;
searching said persistent market data to discover which of said consumer agents, while searching for products related to said certain product
15 or certain product category, generated certain records within said persistent market data;
whereby a provider can select specific consumers that may be interested in said certain product or certain product category.

20 42. A method for targeting specific consumers, each of whose identity remains concealed, according to their on-line shopping activities and preferences, utilizing persistent market data generated by consumer agents that conceal said identity while searching a data base of offers to sell and offers to buy, and utilizing a consumer data base of consumer preference data,
25 comprising:
searching said consumer data base to discover which of said consumer agents possess certain preferences;

searching said persistent market data to discover which of said consumer agents generated certain records within said persistent market data; whereby a provider can select specific consumers to receive messages.

5 43. The method of claim 42 wherein said certain records pertain to said consumer agents searching for specific products.

44. The method of claim 42 wherein said certain records pertain to said consumer agents searching within a product category.

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45. A method of extending a consideration payment to a consumer, whose identity remains concealed, in return for said consumer providing useful market data to a provider, comprising:
said provider selecting consumer agents to receive a message;
15 said provider causing said message to be delivered to said consumer agents; each of said consumer agents displaying said message to said consumer agent's associated consumer;
each of said associated consumers generating a response to said message; said provider's associated provider agent generating, for each said response
20 received, a consideration notice addressed to the consumer agent associated with the consumer that generated the response;
said associated provider agent causing each said consideration notice to be delivered to said associated consumer agent;
each said consumer agent crediting said associated consumer's
25 consideration account;
whereby said consumer can receive a consideration payment for divulging useful market data to said provider; and

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whereby said provider can solicit valuable market data without imposing on or invading the privacy of said consumers.

46. The method of claim 45 wherein said message is an advertisement.

47. The method of claim 45 wherein said message is a marketing survey.

48. The method of claim 45 wherein said message is a questionnaire about the reason for a sale.

49. The method of claim 45 wherein said message is a questionnaire about the reason for a lost sale.

50. A method of a consumer automatically rejecting certain unsolicited messages from a provider, comprising:
said provider causing a message to be delivered to a consumer agent;
said consumer agent comparing aspects of said message to a consumer data base of consumer preference data;
if said message satisfies said consumer preference data, said consumer agent allowing said message to complete delivery to said consumer;
if said message violates said consumer preference data, said consumer agent rejecting said message by:
automatically generating a rejection message including an indication of the violated consumer preferences;
causing said rejection message to be delivered to said provider;
whereby said provider can gain valuable market data even from messages that are blocked from delivery.

51. A method of a provider simulating demand, comprising:
providing a data base of offers to sell and offers to buy;
providing a provider agent associated with and capable of communicating
with a provider;
5 providing a plurality of consumer agents, each associated with and capable
of communicating with a consumer;
said provider places an invisible advertisement in said data base of offers to
sell and offers to buy;
a consumer agent, when ordering or ranking search results, if said search
10 results include a reference to said invisible advertisement, ranks said
invisible advertisement along with other said search results;
said consumer agent, when ranking said invisible advertisement, generates
a message indicating the ranking of the invisible advertisement;
said consumer agent sends said message to the associated provider agent;
15 said consumer agent, when delivering said search results to the preferred
communication device of the associated consumer, omits said
invisible ad;
whereby said provider can determine simulated demand for the product
described by said invisible ad.

20 52. A method of a provider replaying demand, comprising:
providing a plurality of consumer agents, each associated with and capable
of communicating with a consumer;
providing a data base of offers to sell and offers to buy;
25 consumer agents searching said data base of offers to sell and offers to buy,
whereby said consumer agent searching generates persistent market
data;

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a market reference for indicating in which market the decision agent should search;

5 a query for describing the product or product category for which to search;
a response manager for receiving search results and returning the search
results to the consumer; and
a log function for storing records of the activities of the decision agent.

10 55. A combination according to Claim 53 wherein the demand agent
comprises, in combination:

15 a unique identifier function for maintaining an identifier that uniquely identifies this demand agent within the agent system;
a market reference for indicating in which market or markets the demand agent should search;
a datetime range function for indicating that demand should be quantified over the date/time range specified;
a demand query for describing a product or product category query that can be matched against the queries of decision agents; and
20 a log function for storing records of the activities of the demand agent for later consultation by other components of the agent system.

56. A combination according to Claim 53 wherein the market comprises, in combination:

25 a product listing function for maintaining a list of the products that can be
 advertised in this market;

a cross reference manager for maintaining cross references to other markets that carry similar products;

5 a buy advertisement manager for accepting/advertisements of offers to buy
that are submitted by consumers;

10 a template dispenser for retrieving data that is available within the agent system about a particular product;

an historical demand search engine for matching demand queries of
15 demand agents against the queries that have been previously logged
by the query logger to identify decision agents that previously,
during a specified datetime range, had searched for a certain
product or product category.

20 57. A combination according to Claim 56 wherein the market further comprises a remote database adaptor for providing communication and session management services to connect to a remote database belonging to a manufacturer or a provider and translating between the data formats used by the remote database and the data formats used by the market.